Message

**From:** Fennessy, Christopher [christopher.fennessy@Rocket.com]
**Sent:** 3/18/2019 11:04:33 PM
**To:** Keller, Lynn [Keller.Lynn@epa.gov]; ROJAS-MICKELSON, DAEWON [rojas-mickelson.daewon@epa.gov]; jim.rohrer@dtsc.ca.gov; MacDonald, Alex@Waterboards (Alex.MacDonald@waterboards.ca.gov) [Alex.MacDonald@waterboards.ca.gov]; Stralka, Daniel [Stralka.Daniel@epa.gov]; Mitchell, Valerie@DTSC (Valerie.Mitchell@dtsc.ca.gov) [Valerie.Mitchell@dtsc.ca.gov]; 'Myers, Perry@DTSC' [Perry.Myers@dtsc.ca.gov]
**Subject:** RE: Groundwater and Vapor Monitoring and Response Plan - Continuing discussion of trigger levels

Hi Everyone – Thanks for participating in this morning's call. Based upon our call, we have two scenarios to consider. Both scenarios are essentially the same after Tier 1. Red text in Scenario 2 is different from Scenario 1. In both scenarios, all habitable structures will already have vapor mitigation systems (passive venting with ability to be active).

Scenario 1
Tier 1

- Step 1 - AR would install a row of sentinel groundwater monitoring wells 100 feet upgradient of the Glenborough development approximately 500 feet apart
- Step 2 - AR would monitor these sentinel groundwater monitoring wells quarterly for the first year, then annually thereafter unless the concentration in the sentinel groundwater monitoring well reaches the trigger level
- Step 3 - If the concentration in the sentinel groundwater monitoring well reaches the trigger level, it will be sampled for two more consecutive months to confirm the detection

- If the detection is confirmed in either sample, go to Tier 2
- If the detection is not confirmed, continue quarterly monitoring for three more quarters, then go back to Tier 1, Step 2 (sample for three more quarters, then go back to annual)

Tier 2

- Step 1 – AR would install Community Vapor Monitoring Wells within the community downgradient of the sentinel groundwater monitoring well that triggered Tier 2 and new sentinel groundwater monitoring wells down-gradient of this community. The sentinel groundwater monitoring wells would be placed in the Tier 1, Step 2 monitoring program
- Step 2 – AR would monitor these Community Vapor Monitoring Wells quarterly for the first year, then annually thereafter unless the concentration in the well reaches the trigger level
- Step 3 – If the concentration in a Community Vapor Monitoring Well reaches the trigger level, it will be sampled for two more consecutive months to confirm the detection

- If the detection is confirmed in either sample, go to Tier 3
- If the detection is not confirmed, continue quarterly monitoring for three more quarters, then go back to Tier 2, Step 2 (sample for three more quarters, then go back to annual)

Tier 3

- Step 1 – Submit response plan to document steps necessary to prevent continuing vapor concentration increases
- Step 2 – Continue monitoring Community Vapor Monitoring Wells quarterly
- Step 3 – If the concentration in the Community Vapor Monitoring Well hits the next trigger level, implement response plan.

Scenario 2
Tier 1

- Step 1 - AR would install a row of co-located sentinel groundwater monitoring wells and sentinel vapor monitoring wells 100 feet upgradient of the Glenborough development approximately 500 feet apart
- Step 2 - AR would monitor these sentinel groundwater monitoring wells and sentinel vapor monitoring wells quarterly for the first year, then annually thereafter unless the concentration in the sentinel vapor monitoring well reaches the trigger level
- Step 3 - If the concentration in the sentinel vapor monitoring well reaches the trigger level, it will be sampled for two more consecutive months to confirm the detection

- If the detection is confirmed in either sample, go to Tier 2
- If the detection is not confirmed, continue quarterly monitoring for three more quarters, then go back to Tier 1, Step 2 (sample for three more quarters, then go back to annual)

Tier 2

- Step 1 – AR would install Community Vapor Monitoring Wells within the community downgradient of the sentinel vapor monitoring well that triggered Tier 2 and new, co-located sentinel groundwater monitoring wells and sentinel vapor monitoring wells down-gradient of this community. The sentinel groundwater monitoring wells and sentinel vapor monitoring wells would be placed in the Tier 1, Step 2 monitoring program
- Step 2 – AR would monitor these Community Vapor Monitoring Wells quarterly for the first year, then annually thereafter unless the concentration in the well reaches the trigger level
- Step 3 – If the concentration in a Community Vapor Monitoring Well reaches the trigger level, it will be sampled for two more consecutive months to confirm the detection

- If the detection is confirmed in either sample, go to Tier 3
- If the detection is not confirmed, continue quarterly monitoring for three more quarters, then go back to Tier 2, Step 2 (sample for three more quarters, then go back to annual)

Tier 3

- Step 1 – Submit response plan to document steps necessary to prevent continuing vapor concentration increases
- Step 2 – Continue monitoring Community Vapor Monitoring Wells quarterly
- Step 3 – If the concentration in the Community Vapor Monitoring Well hits the next trigger level, implement response plan.

On Thursday, we will attempt to pin down the preferred Scenario and the trigger levels. For trigger levels, EPA has stated that the Area 40 trigger levels are appropriate. These trigger levels are based upon the assumption that the vapor mitigation system provides 2-3 log reduction in concentration (based upon radon data). If we use the low end (2 log), then the concentration we would need to prevent reaching the community would be 1600ug/m3. We would want to ensure additional remedy was in place prior to reaching this concentration. AR proposed using 160ug/m3 as the concentration at which we would have to submit the response plan and some value between 160-1600ug/m3 (maybe 500ug/m3) at which we would have to implement the response so it never reaches 1600ug/m3.

Response from the group on these trigger concentrations has been that without indoor air confirmation samples, the reduction provided by the vapor mitigation systems cannot be relied upon.

Thanks, Chris

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-----Original Appointment-----
**From:** Fennessy, Christopher
**Sent:** Wednesday, March 06, 2019 9:09 AM
**To:** Fennessy, Christopher; Keller, Lynn (Keller.Lynn@epa.gov); jim.rohrer@dtsc.ca.gov; MacDonald, Alex@Waterboards (Alex.MacDonald@waterboards.ca.gov); 'Stralka, Daniel (Stralka.Daniel@epa.gov)' (Stralka.Daniel@epa.gov); Mitchell, Valerie@DTSC (Valerie.Mitchell@dtsc.ca.gov)
**Cc:** rojas-mickelson.daewon@epa.gov
**Subject:** Groundwater and Vapor Monitoring and Response Plan - Continuing discussion of trigger levels
**When:** Monday, March 18, 2019 10:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).
**Where:** Conference call - See below

1-415-527-5035

Attendee access code: 155 502 85